

**AN ECONOMIC EXPLORATION OF OBESITY, QUALITY OF LIFE
AND CONSUMER PREFERENCES**

by

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not been previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information and literature used are indicated in the thesis.

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Jody Church

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ABSTRACT

This thesis explores aspects of obesity using economic methods. Specifically, the research provides insight into the issues of conducting economic evaluations of obesity interventions, the relationship between quality of life (QoL) and weight change, and consumer preferences for weight loss programs and future health benefits.

The thesis comprises five studies. The first reviews current economic evaluations of interventions to reduce obesity. This study demonstrates that claims of cost-effectiveness are often overstated, with inadequate documentation and questionable modelling. In particular, the modelling approaches inherently assume that individuals gain QoL when weight is lost, even though this has not been demonstrated.

The next two studies examine the relationship between obesity and QoL using a national panel data set of 19,914 individuals – the Household Income and Labour Dynamics Australia (HILDA) survey. The cross-sectional analysis supports previous research findings that obese individuals have a lower QoL relative to normal weight individuals. However, the longitudinal analysis demonstrates that reductions in body weight do not correspond to short-term improvements in QoL. Instrumental variable analysis suggests that the impacts on QoL may be mediated through poorer mental health that persists after weight loss.

In the fourth study, a discrete choice experiment was developed to elicit preferences between two hypothetical weight-loss programs. An online panel was used to recruit over 1,800 respondents, representative of the Australian population. Respondents preferred lower-cost individually-tailored exercise programs. Surprisingly, programs that led to an improvement in QoL were highly significant, relative to weight-loss alone. This result reinforces the need for a greater focus on QoL outcomes. Preferences were generally similar across weight groups.

The final study explores the idea that obese individuals may have different rates of time preference. A multiple staircase approach was used across four different scenarios; the results did not support the theory that obese individuals are more present-focused. However, the results did suggest that obese individuals may discount health and money differently.

Overall, the social and economic burden of obesity is a major public health concern and developing interventions and assessing their outcomes is important in addressing the current obesity epidemic. The results from this thesis demonstrate that there is an important association between obesity and QoL. However, the trade-offs for individuals who are overweight or obese are complex and multifaceted.

GLOSSARY

Abbreviation	Description
ABDS	Australian Burden of Disease Study
ABS	Australian Bureau of Statistics
AIC	Akaike information criterion
AHS	Australian Health Survey
AIHW	Australian Institute of Health and Welfare
AUD	Australian dollar
BIC	Bayesian information criteria
BMI	Body Mass Index (kg/m ²)
CEA	Cost-effectiveness analysis
CHERE	Centre for Health Economics Research and Evaluation
CI	Confidence interval
COI	Cost of illness
CUA	Cost–utility analysis
DALY	Disability Adjusted Life Year
DCE	Discrete Choice Experiment
EQ-5D	European Quality of Life (EUROQoL) 5 Dimensions
GMNL	Generalised multinomial logit
HILDA	Household Income and Labour Dynamics in Australia Survey
ICER	Incremental Cost-Effectiveness Ratio
IIA	Independence of irrelevant alternatives
iid	Independent and identically distributed
MNL	Multi-nominal logit
MXL	Mixed logit
mWTP	Marginal willingness to pay
NHS	National Health Survey
NHS	National Health Service (UK)
NR	Not reported
NSW	New South Wales
OECD	Organisation for Economic Co-operation and Development

OLS	Ordinary least squares
OOP	Out of pocket
PBAC	Pharmaceutical Benefits Advisory Committee
PBS	Pharmaceutical Benefits Scheme
QALY	Quality Adjusted Life Year
QoL	Quality of Life
RCT	Randomised controlled trial
RP	Revealed Preferences
RUT	Random Utility Theory
SE	Standard error
SF-36	Short Form 36
SF-6D	Short Form 6 Dimensions
SG	Standard Gamble
SP	Stated Preferences
TTO	Time trade-off
WHO	World Health Organization
WTP	Willingness to pay

‘It is very injurious to health to take in more food than the constitution will bear, when, at the same time one uses no exercise to carry off this excess.’

— *Hippocrates*